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Rhetorics, Heuristics and Evidence

A GUIDE TO READING
GLOBAL INFORMATION



Giappichelli

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Introduction

This book was primarily conceived for my students at Università degli Studi di Milano, but it could be used by other students in Italy and abroad who need the fundamentals to critically read the flow of information that is globally produced and that contains rhetorics and myths, exploit heuristics and biases, and uses scientific evidence and statistics not always in the best possible way. This is the message in the title. While conceived for didactic purposes the book can also be useful for practitioners of the media and also of politics. Although written for students and not for scholars, this book is robustly grounded in a multi-disciplinary body of scientific literature. There are many methodological books just focussed on the epistemology and methods of the social sciences and on statistics, as well as textbooks on the analysis of rhetorics, handbooks on behavioural sciences, and books on the relation between evidence and policy-making. This book is unique in that it brings together all these perspectives in accessible way, and it is both concise and exhaustive. It benefits both from my experience in academic research and from that in applied policy research that I have been doing since 2005 for governments and international organisations.

The genesis of this book is two-fold, namely it is linked to both my teaching activity and to my work in applied policy research. From 2011 until 2016 I have taught the course ‘Globalisation Processes’. As I was teaching, year by year, I felt increasingly uncomfortable with providing students ‘evidence’ on various topics that rested on shaky conceptualisations and were surrounded by countless rhetorics. It became increasingly evident to me that globalisation was more a topic of debate and rhetorical narratives rather than a well-defined and clear-cut phenomenon. An all-encompassing and umbrella concept emptied of any real empirical significance by decades of controversies both in academia and politics. The more so, after the Great Recession of 2008-2010 and the watershed electoral results of 2016-2018 (i.e., Brexit, Trump, the Italian constitutional referendum of December 2016 and the Italian political elections of 2018). Rhetorics, myths, and biases surround globalisation in various issues such as the future of work, robotisation, immigration, free-trade and protectionism, fake

news and populism, and many others. So, from the edition of 2017, I decided to change the focus of my course, whose title became *Global Information Processes* instead of *Globalisation Processes*. The focus of the course moved to how socially relevant phenomena are narrated through the harnessing of information and evidence into what at times are just rhetorical narratives, myths, and biased reconstructions based on mental shortcuts (heuristics). The global dimension remained, but in the background as a source of examples and cases.

The second input comes from my long experience in applied policy research. Actually, this second stream fed the new edition of the course, and the two dimensions, that of teaching and that of applied policy research became entwined to shape both the last editions of this university course and this book, which brings together five years of lectures. Since 2005 I have been carrying out research in support for policy making for different international organisations, national and local governments. Twice I took a leave of absence from my university position and worked at the Joint Research Centre (JRC) of the European Commission participating directly in how information and science are used in the policy-making process.

The anthropologist Geertz (1983) once distinguished the spontaneous and unaware ‘experience-near’ account of reality, from the ‘experience-distant’ conceptualised account of it. He argued that one should always shift back and forth between these two forms of experience and accounts. In my work supporting policy making, though I was mostly asked to work on and provide ‘experience-distant’ accounts of the reality surrounding the policy issues at stake, my involvement in the policy processes and interaction with policy makers were a source of ‘experience-near’ knowledge about the relations between scientific expertise/advise and public policy. I have been a privileged observer of how facts are gathered and constructed for the purpose of formulating public policies, as well as how science and scientific advice are used politically. What I added, thus, to my course and to this book is a critical retrospective of my experience that is both based on the subject matter of the various policies (mostly ‘experience distant’) but also on the way evidence is used in policy making, reconstructing the spontaneous and unaware experience, and learning from my interaction with policy makers and their stakeholders.

It is exactly in the course of this experience that I became aware of the importance of rhetorical narratives in using information and evidence and rediscovered the lessons of Albert O. Hirschman (Hirschman, 1991). During my last stay at the JRC, I was anointed with the tasks of scoping the process of ageing and then the so-called sharing economy in support of two policy dossier. After delving into the two topics, I spotted how evidence and rhetorics went hand in hand and how difficult it was to disentangle them. The production of knowledge

does not occur in a vacuum, it is enmeshed in a wider social and political system and is shaped as much as by institutional pressures as by the quest for reason. Science is not simply an exercise in curiosity but an undertaking with stakeholders to satisfy. The more so in the context of applied research for policy. So, I indulged my intellectual curiosity to critically explore not only evidence but also the rhetorics and myths surrounding those two topics. I embarked on a somehow erratic but extensive navigation in the different literatures, codes, terminology, and rhetorical narratives equipped with Hirschmanian lenses.

Hirschman considered ideas, values, and rhetorical discourses as having autonomous effects on the process of change itself, regardless of whether or not they are empirically grounded. He considered them part of the endogenous mechanisms of social and economic change with an approach that can be deemed ‘pragmatic idealism’ (Adelman, 2013, p. 422). In his book *The Rhetoric of Reaction* (1991), Hirschman applied such perspective with its main concern being the role of discourse in democracy. He observed how opposing groups in liberal democracies sometimes get walled off from each other’s opinions and views; rhetorical discourses can explode into conflict simply as a result of the ‘imperative of the argument’. Rhetorical discourses limit what people might consider as alternatives and are immune from being wrong and accommodate uncertainty. He found a detached analysis of surface rhetoric, placed historically and analytically in context, more useful than a head-on attack on one of the opposing factions, and claimed that deconstructing rhetoric by using empirical evidence could help restore dialogue and communication between conflicting factions. Rhetorics are part and parcel of debates on important policy issues that involve opposing interests entering into various forms of negotiations that can be settled or become intractable. Rhetorical discourse is also an instrument of framing policy agenda and debates.

The perspective of rhetorical framing developed in my applied policy research activity, it then became a prism through which I decided to teach my students to navigate the vast amount of information and narratives that surround globalisation in general and many of its alleged manifestations. So, my course during the past five years aimed to treat, not only the key topics falling under the globalisation label, but also to critically analyse the main rhetorics, myths, prejudices, and biases surrounding the debate on globalisation, confronting them with robust and valid scientific and empirical evidence.

Furthermore, since 2012 in my policy applied work, I have used the new insights coming from what I call the cognitive and behavioural turn, a movement that finds its roots in the so called ‘undoing project’ (Lewis, 2016) of Amos Tversky and Daniel Kahneman, a friendship and intellectual undertaking that changed our minds and how we think about them. This intellectual project brought to

the fore the mental shortcuts (heuristics) and biases that characterise human judgment and decisions, particularly when dealing with numbers and probabilities but also in other realms. The stream of research that followed, going under the more fashionable name of ‘behavioural economics’ (when in reality it has its roots in cognitive and social psychology), has shaken the edifice of rational choice theory. A corollary, after the success of the best seller *Nudge* by Thaler and Sunstein (2009), has been the application of the behavioural perspective to the formulation and testing of public policies. In this domain, since 2012 with my research team we designed and conducted about 25 experiments (designed as Randomised Control Trials) for various directorate generals of the European Commissions on a wide range of topics such as health warnings, gambling, eco-labelling, protection of consumers in the digital environment, and much more. In my course and in this book, thus, I also introduce such perspective and I integrate it with that of the analysis of rhetorics, especially through the concept of framing.

The reference to rhetorics, heuristics, biases, and framing may give the impression that the approach of this book is constructivist and inspired by an anti-positivistic and anti-quantitative hermeneutic approach. Nothing could be further from the truth. Throughout my research activity I have always applied the scientific method and used when appropriate statistics and quantitative tools, including experiments and models. I do trust science and dedicate all my efforts to follow the scientific method even in such a complex domain as that of the social sciences, where facts are hardly just facts. But coercion is not science, censorship is not science, fake data or instrumental interpretation of data is not science, manipulating results is not science, cherry-picking studies is not science, fear mongering is not science. Science, however, does not occur in a vacuum, it is a social system and it is inevitably entwined with ethics and politics, as well as at times with economic interests. To a large extent the decision about what is true is not independent from the decision about what is just (Lyotard, 1979). Trust in Science and trust in the prevailing social order are linked (Shapin & Schaffer, 2011). The industrialization and privatization of science run the risk of producing its commodification (Mirowski, 2011; Ravetz, 1971). These aspects can lead to forget that the existential condition of science is that of ‘epistemic uncertainty’, that is at any given moment there are ‘unknown unknowns’, from which should descend epistemic humility. A recent short article published in *Nature*¹, reports that disruptive science had steadily declined in the past 50 years. So, fewer ‘Eureka’ were pronounced that radically changed a scientific discipline, and this applies to all sorts of sciences, from the physical to

¹ Kozlov, M. (4 January 2023). Disruptive’ science has declined – and no one knows why, *Nature*. <https://www.nature.com/articles/d41586-022-04577-5>, accessed 09/01/2023.

the social sciences. It seems that scientific production is increasingly incremental and gradual, with slow approximation to the truth. But, if science is only an incremental and gradual approximation to the truth, why is it that when scientists enter in contact with the media they often act as Gurus and Prophets dispensing certainties, rather than benefits of doubts about their own knowledge and research? This was particularly evident with respect to the Covid-19 pandemic, when on TV talk-shows the journalists introduced this or that virologist saying: ‘and now we listen to Science’. So, this is a book also about science, the scientific method, and also shortly about epistemology. A humble primer on epistemology and causality is instrumental for students, not only to have a critical approach to science, but also and above all to be able to tease out the assumptions implicit in the language of media and politicians. Media accounts of events and politicians statements are ridden with implicit assumptions about what is true, what is a fact, and often unwarranted causal attributions especially.

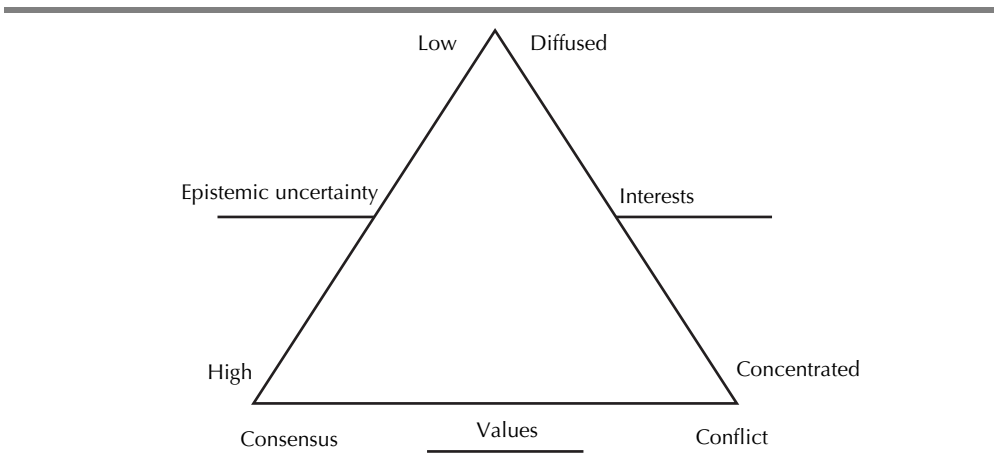
Quantification (statistics, numerification, metrification) has expanded exponentially, including as a result of the diffusion of big data and Artificial Intelligence (AI). It is a defining feature of our present time and life. We can even speak of a quantified self, given all the data about ourselves that our smart phones detect and that we leave online for others to analyse. In this respect this quote from 1951 is very relevant: “*Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write*”². As in the case of science in general, measurement (quantification) is closely linked to the issue of social order. Statistics started to be gathered as an instrument of modern statecraft. Constructing statistics has been an important aspect of modern nation-building, of making an otherwise amorphous composite of people and attributes into a thing that is held together in the imaginations of politicians, government officials, and the general public. Quantification and statistics building turn qualities into quantities and, by doing so, they create new things and relations among them. What are a priori separate things become held together through quantification that, thus, lends ‘reality’ to larger and complex objects. Counting may seem simple, but in practice creating numbers requires a lot of work, including epistemological and political choices. Quantifiers are faced with various challenges ranging from formulating questions, defining samples, managing missing variables, constructing indices. Counting on a large scale, such for censuses and official statistics, requires well-funded bureaucracies with highly trained administrators, especially if the counts are politically contested or official – and the two usually go together (Porter, 1995). Rigorous, defensible, and

²Quote from the presidential address in 1951 of mathematical statistician Samuel S. Wilks (1906-1964) paraphrasing from HG Wells’ book *Mankind in the Making*.

enduring systems of quantification require expertise, discipline, coordination, and many kinds of resources, including time, money, and political muscle. This is why quantification is often the work of large bureaucracies. The key question for a critical analysis of quantification is what shapes the production of numbers? This entails understanding, not just technical issues, but rather the technological and techno-social decision-making process that shapes choices. This is important because once a particular statistic or number becomes institutionalised, then such choices are obliterated and the number reified. Those political and methodological choices that are clear during the process of number production, then disappear when they get to be used and accepted. To the extent that indicators and measures serve as infrastructure of government and market, they do so best when their own epistemological infrastructures function invisibly. State authorities and/or strong economic interests, but often also the media, keen to get their views accepted welcome the non-transparency of reified numbers. Yet, in any domain of public debate and public policy making the choices of the ‘right’ numbers are rarely just a technical exercise delegated to experts. The numbers reflect all the political, moral, and cultural dimensions of public debate and policy-making. Technical instruments are never neutral and over-quantification often hides political agendas. Therefore, this book will also present a mostly non-technical discussion of statistics and measurement.

The overall conceptual framework I adopt for this book is a slightly modified version of the ‘triangle of policy’ presented in the book *Scienza in vendita* (Codagnone *et al.*, 2018).

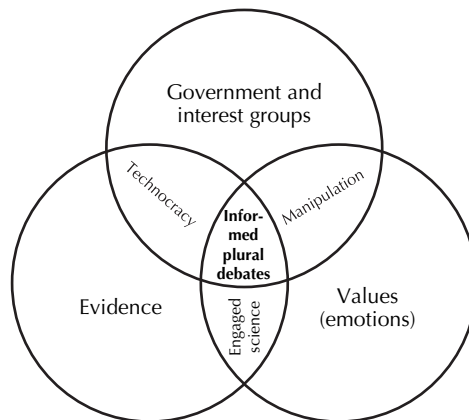
Figure 1. – The triangle of policy



Source: Author’s re-elaboration on Codagnone *et al.* (2018).

In *Scienza in vendita* (science on sale) with my co-authors we focussed only on the relationship between science and policy making, positing that such relationship depended on the three dimensions depicted above. The level of uncertainty characterising the available evidence, whether concentrated or diffused interests are involved, and whether on any policy issue the debate is characterised by value consensus or value conflicts. Depending on the configuration of these dimensions, we analysed the merits of different approaches to policy-making such as Evidence Based Policy, Citizen Engagement, and Negotiated conflict. Our conclusion, to which I will come back in chapter 5 of this book, was that there is no one fits all solution, but different approaches are more or less effective depending on each concrete case. In this book I re-elaborated and extended this analytical framework to fit any issue, being the object of a policy or simply of public debate, that entails the use of science and quantification considering the surrounding socio-political context, and the rhetorics and heuristics often at play when evidence is used to support a view of what is true and just. I see how evidence is constructed and used as shaped by the interaction between the three dimensions of the figure below. The status and characteristics of evidence itself and the role of experts and scientists, the involvement of governmental and political actors broadly defined (to include organised interest groups), and how values and emotions are played at large but particularly through the interaction of media and society.

Figure 2. – Evidence and rhetorics analytical framework



Source: Author's elaboration.

The evidence dimension concerns science and scientists/experts and how they influence, or are influenced by, policy making debates and the values of the surrounding society. The values dimension, with its underlying emotionally shaped system of beliefs, in a stylised fashion refers to society and the citizenry at large and as such includes the role of the media. The dimension of politics has to do both with organised interests and policy makers. The political dimension in the use of evidence involves also the policy making bodies and the policy makers, because it would be naïve to take for granted that policies are enacted only for public interest and that evidence is used in policy making only for the sake of efficiency and effectiveness. Policy makers and politicians have their own agenda and goals, as well as their values. They interact with concentrated specific interests (i.e., industry) and diffuse interests (i.e., consumers). This is a classical distinction following Mancur Olson's theory of collective action (Olson, 1971 [1965]). It is in such context that the issue of rhetorical framing acquires importance as an instrument within the political dimension in the use of evidence, which brings us back to Hirschman. Rhetorics are part and parcel of debates that involve opposing interests entering into various forms of negotiations that can be settled or become intractable. Rhetorical discourse is also an instrument of framing policy agenda and debates. Tversky & Kahneman (1981) have shown that framing can affect the choice one makes in any given choice problems, that is to say that framing the exact same choice in a different manner can radically change the choice actors make. So, a framing strategy can be used by players on both sides of a contested issue to polarise the situation, also in the way evidence is constructed and used. Through the values amplification logic, framers can actively promote and embellish a specific value to justify the actions proposed in its name. Value amplification refers to the identification, idealization, and elevation of one or more values presumed basic to prospective constituents but which have not inspired collective action for any number of reasons. Framing, thus, is at the centre of the social construction of collective action creating an interface between media discourses and interpersonal interaction. Following these insights, in the last two decades the framing perspective and the role of ideas have increasingly been applied both theoretically and empirically in the study of both politics and policy making. Framing affects the policy making process in three ways: a) constructing the issues entering the agenda; b) shaping the assumptions that affect the content of policy proposals; and c) it may build discursive weapons in the construction of reform imperatives. Therefore, in the proposed analytical framework the rhetorical framing of discourse also by way of producing and disseminating "evidence" can be considered a strategy weapon of lobbying especially by concentrated interests in an attempt to shape the policy agenda and contents in ways that are

favourable to them or at least to contain the potential damage that may derive from regulatory intervention.

In view of the discussion and themes presented so far, it should not come as a surprise that this book focuses on providing some basic fundamentals and interpretative tools to discern between rhetorical discourses and evidence. The book is a guide to reading information and to appraise evidence when confronting a claim or a statement about ‘reality’, as to identify rhetorical elements and myths not fully supported by ‘facts’. It also helps readers uncover prescriptive and normative elements hidden inside allegedly ‘objective’ accounts of a given phenomenon. Public debates, political controversies, media accounts are all ridden with a language of objectivity, with statement of ‘facts’, attribution of causality, and with the use of statistics that are often taken at face value. In the media the results of scientific research are often reported in simplified and distorted fashion, with a cherry-picking that is instrumental to the agenda that one wants to bring forward. There is a fetishism of data and statistics that are reported that rarely discuss critically how they have been produced. The objective of this book is to provide students with epistemological and methodological foundations, as well as give them an understanding of rhetorical discourse and of the heuristics and of the cognitive and emotional biases that limit the individuals’ rationality, which contributes to generating prejudices and distorted views.

Chapter 1 presents in simplified form a few key issues in epistemology and methodology. Chapter 2 deals with statistics and measurement. Chapter 3 focuses on the behavioural turn, whereas chapter 4 is about rhetorics and how they interact with heuristics and biases. Chapter 5 is about evidence and policy. In chapter 6 I present four cases of application on globalisation, the future of work, fake news, and Covid-19. In chapter 7, I conclude reviewing and linking together the key issues of all the previous chapters.

1.

The basis of knowledge

Why a chapter on the basis of knowledge that will venture into epistemological and methodological themes, and also discuss the thorny issue of causality? Because in public discourses, in the media, and in our everyday lives language is often permeated with statements that have implicit and unexplored assumptions about what is a fact, what is true, and about causality. The best example that comes immediately to mind is during the various peaks of Covid-19. In those instances politicians and/or the media causally attributed to lockdowns the decrease of cases, and instead when cases were growing despite lockdown, they claimed that the cause was the misbehaviour of citizens. Politicians and journalists often take for granted and present as facts what in practice may end up being just subjective perceptions and/or constructions. One must explore and challenge the implicit assumptions of discourses to assess the extent to which statements of truth can be warranted. Furthermore, still during Covid-19, we heard and read over and over again “we follow the science” mantra, and so it is important to critically consider how knowledge gets to be considered valid according to the scientific method and to consider the limits of science. Before the pandemic brought back this mantra, in the previous decade criticisms in the media had shattered the scientific enterprise¹ and the confidence that it can be

¹One example is an article appeared in *The Economist* in October 2013 and titled ‘*How Science Goes Wrong*’ (<http://www.economist.com/news/leaders/21588069-scientific-research-has-changed-world-now-it-needs-change-itself-how-science-goes-wrong>) and focussing especially on the problem of reproducibility of results. On this topic various pieces have subsequently appeared in the likes of *Nature* and *Science* (Glenn Begley, 2013). The last is a recent report in *Nature* about little replication of results in psychological experiments (“First results from psychology’s largest reproducibility test”, <http://www.nature.com/news/first-results-from-psychology-s-largest-reproducibility-test-1.17433>). It is telling that in this context *Nature* published a piece containing 20 tips for politicians to interpret scientific claim where the key message is that un-

fruitfully used to enhance the public good along the lines of the classical linear model of the relations between science and policy². Accordingly the idea of ‘speaking truth to power’³ by way of scientific advice to politicians and policy makers became under serious reconsideration. The ‘Evidence Based Policy’ agenda launched in the UK by Labour at the end of the 1990s and subsequently spread worldwide, touted by some as the ‘rescientisation’ of public policy (Whitehead *et al.*, 2011), is in crisis with an increasing number of contributions critically turning it on its head and arguing that what is happening in practice is ‘Policy Based Evidence Making’ as a form of misuse of evidence in policy making (Sanderson, 2011; Strassheim & Kettunen, 2014; Torriti, 2010). In order give the instruments of a critical approach to science, we need to deal, by adopting simplicity and without becoming too technical, with some fundamental ontological, epistemological, and methodological questions. This means discussing epistemic uncertainty as the existential condition of science, as well as science relation with societal values and with society at large.

So, the aim of this chapter is to define and discuss key concepts such as ontology, epistemology, methodology, and to provide a broad introduction to basic epistemological issues especially in the field of the social sciences. It is, however, beyond its scope a comprehensive treatment of the philosophy, epistemology, and methodology of the social sciences⁴. Rather, I extract from my own research practice some of the basic and key aspects that can help students critically appraise public discourses and more generally any type of source of information they may come across.

certainty and measurement errors are always present in any scientific work (Sutherland *et al.*, 2013).

²This model assumed a linear flow from basic research to applied research to development and ultimately societal benefits and prescribed scientific agreement on a given issue as a prerequisite for a political consensus to be reached and then policy action to occur (Pielke, 2007, pp. 12-14).

³The expression ‘truth to power’ was first used in 1979 (Wildavsky, 1979), after which it has been often applied to refer to scientific advice to policy especially in terms of the evaluation activities that ensure accountability in the spending of public money.

⁴For more detailed overview of these key issues see (Cartwright & Montuschi, 2014; Hollis, 1994b; Rosenberg, 2016).

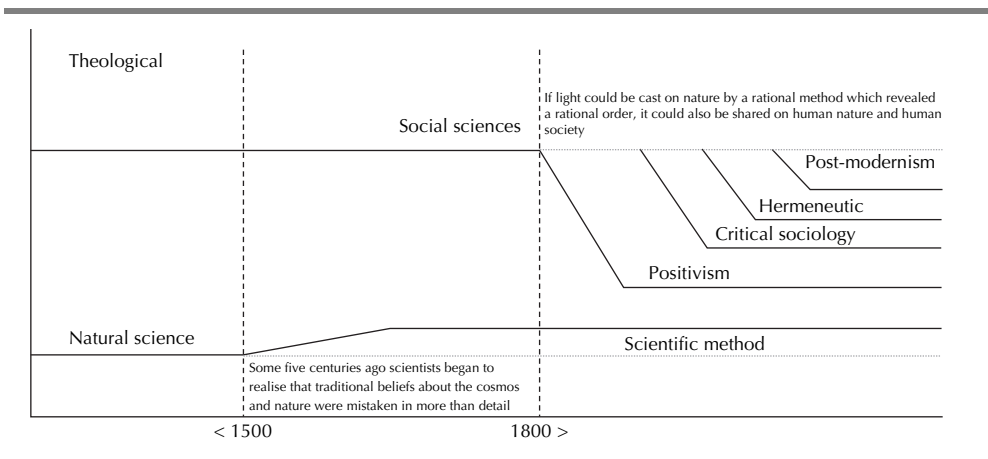
1.1. Fundamentals and selective review of epistemologies and paradigms

What follows in this section is a ‘dangerously simple’ introduction to some basic fundamentals of epistemology in general and with specific regard to the social sciences. It is written for readers with no previous knowledge of these aspects, so it is dangerously simple in the eyes of the expert, as treating in depth and exhaustively the following topics would require a separate book. In my treatment I will be selective and non-technical with the humble objective of getting the readers acquainted with different views of conceiving what are the basis of knowledge, and to make explicit some of the assumptions behind what is presented as evidence.

The picture below is a very simple summary of the history of knowledge.

1.1.1. Key concepts

Figure 3. – History of knowledge in one snapshot



Source: Author's elaboration.

Theological knowledge is a constant line as it existed before any other form of knowledge and it continues to exist, although those who believe in it have greatly decreased in number. Starting in the 16th century, in the midst of difficulties and persecution, a handful of what we can now call scientists started to challenge the knowledge about the cosmos and the functioning of nature put forward by theology. They started to investigate and they established what came

to be known as the scientific method. Between the 16th century and the 18th century some attempts to rationally study society and economy already emerged but in scattered and unsystematic matter. It was only in the 19th century that we can place the birth of the social sciences. The first social scientists believed that if light could be cast on nature by a rational method which revealed a rational order, it could also be used to shed light on human nature and human society. These first authors believed that human society could be studied exactly as science studied nature. This can be considered as a sort of ‘naturalism’ holding that there is a single logic of explanation for all the sciences; they came to be called positivists. The debate on positivism has taken hundreds of books and thousands of articles, and it is beyond my scope to enter into any detail of such a debate. The term is used in many ways and often ambiguously. I just want to clarify that sometime the term positivism is used with a derogatory connotation, as a rather unsophisticated and oversimplified view on reality and knowledge. In general, positivism is the application of scientific method to human affairs as belonging to a natural order that can be objectively investigated. Marx, Durkheim, Weber, are all positivists but certainly not unsophisticated in their analysis. Positive science as empiricism is a method resting on observations and the testing of hypothesis against ‘facts’. Then the matter is what can be considered facts and what can be considered knowledge, which brings me to briefly define and discuss some key concepts:

- Ontology: our view of reality (what constitutes reality and how we can understand existence).
- Epistemology: our theory of knowledge (what constitutes valid knowledge and how we obtain it).
- Methodology: strategy, plan or design linking the choice of methods to the desired outcomes.
- Methods: techniques or procedures.
- Theoretical perspective: our philosophical stance, informing the methodology and providing context for its logic and criteria.

The following picture shows intuitively how these concepts could be possibly related. What comes first?